ABSTRACT OF THE DISCLOSURE

A dispersion slope compensating optical waveguide, such as a fiber, having a high negative dispersion slope is provided. The optical waveguide comprises a core region and an clad layer. The core region further comprises a first region and a second region surrounding the first region. The width of the second region is sufficient to confine electromagnetic radiation within a selected wavelength range to substantially only the core region. Thus, bending loss in the waveguide is substantially reduced. The negative dispersion slope of the dispersion slope compensating optical waveguide can be used in conjunction with a dispersion compensating optical waveguide as a dual optical waveguide to compensate both the dispersion and dispersion slope of a transmission waveguide. An optical span and an optical transmission system incorporating the dual optical waveguide is also provided.